

REMARKS

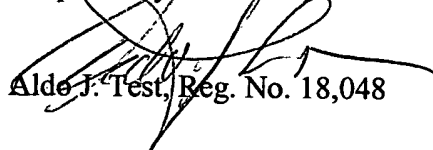
Claim 1 has been amended to provide that the source of electromagnetic radiation projects a substantially parallel beam of electromagnetic radiation at a predetermined wavelength and size through the capillary tube. This results in a volume of the tube being illuminated. In the arrangement shown in Tanaka et al the laser beam is focused onto a point and the emitted energy from that point is detected. This is in contrast to applicant's invention wherein a volume along the capillary is illuminated wherein fluorescent substances anywhere within the volume are detected. The claim has been further amended to provide for a filter arrangement to pass only energy at the predetermined wavelength. This is shown in FIG. 3A as element 314 and in FIG. 3B as the diffraction grating 313. The claimed arrangement of FIG. 3B and 3C have been introduced. Claim 10 has been drafted in independent form including, however, the limitation of allowed claim 10.

It is submitted that the claims clearly distinguish over the reference cited for the above-noted reasons and favorable action is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

The Commissioner is hereby authorized to charge any fee which is determined to be due in connection with this communication to our Deposit Account No. 50-2319 (Order No. A-69293/AJT(463032-16)).

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. (Twice amended) A device for detecting a microparticle in a fluid, the microparticle being tagged with a fluorescent substance, the fluorescent substance emitting fluorescent light of predetermined wavelengths when exposed to electromagnetic radiation, the device comprising:

a capillary tube;

a fluid delivery system coupled to the capillary tube, the fluid delivery system capable of causing the microparticle and the fluid to flow through the capillary tube;

a source of electromagnetic radiation for projecting a substantially parallel beam of electromagnetic radiation of predetermined wavelength and size through [to] said capillary tube in proximity to the capillary tube to expose the fluorescent substance in a volume of the fluid defined by the [beam size or the] beam size and the interior of the capillary tube to electromagnetic radiation to cause emission of fluorescent light by said fluorescent substance in said volume; [and]

a detection device configured and disposed to detect fluorescent light emitted from the fluorescent substance [at an angle to the direction of the beam] in the volume when the microparticle is in the capillary volume and provide an output signal; and

means disposed between said fluorescent substance in said volume and the detector to pass light at said predetermined wavelengths.

10. (amended) [the device of claim 1] A device for detecting a microparticle in a fluid, the microparticle being tagged with a fluorescent substance, the fluorescent substance emitting fluorescent light when exposed to electromagnetic radiation, the device comprising:

a capillary chamber;

a fluid delivery system coupled to the capillary chamber, the fluid delivery system capable of introducing the microparticle and the fluid into the capillary chamber;

a source of electromagnetic radiation positioned in proximity to the capillary chamber to expose the fluorescent substance to electromagnetic radiation; and

a detection device configured to measure fluorescent light emitted from the fluorescent substance when the microparticle is in the capillary chamber, wherein the fluorescent substance has a magnetic charge.

[16. (canceled) The device of claim 1, including a photodetector for collecting fluorescent light from the capillary volume and providing an output signal.]

18. (twice amended) The device of claim [16 or] 17, including means for receiving and processing the output from the photodetector to analyze the Mie scattering peaks.

[19. (canceled) The device of claim 1, wherein the source of electromagnetic radiation comprises a source of light.]

20. (twice amended) The device of claim 1, wherein the source of [light] electromagnetic energy comprises a laser.

25. (twice amended) The device of claim [8] 24, further comprising means for calculating the ingestion rate as a function of the amount of fluorescent light emitted from the fluorescent substance at the selected location.

Claims 38 and 39 have been added as follows:

38. The device of claim 1 wherein said means is disposed between such fluorescent substance in said volume and the detector to pass light at said predetermined wavelengths comprises a diffraction grating and in which the detection device comprises devices for detecting different wavelengths of light provided by said diffraction grating.

39. A device as in claim 38 in which the source of electromagnetic energy comprises a plurality of lasers operating at different wavelengths.